

## TCEQ Interoffice Memorandum

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**To:** Luda Voskov, Project Manager; Superfund Section, Remediation Division

**From:** Larry Champagne, Ecological Risk Assessor; Technical Support Section, Remediation Division

**Date:** November 5, 2010

**Subject:** Gulfco Marine Maintenance Superfund Site  
Draft Preliminary Site Characterization Report (PSCR)  
November 2, 2010

I have completed my review of this draft report and have the comments below. The primary purpose of this report is to see if the data meet the data quality objectives listed in the Final Baseline Ecological Risk Assessment (BERA) Work Plan & Sampling and Analysis Plan (SAP) are of sufficient quality and completeness for further evaluation and risk characterization in the BERA. In addition, this report was designed to clarify the confusion caused by discrepancies found in the previous submittal (the BERA Day 60 Deliverable).

Generally, the collected data are of sufficient quality and quantity to support the BERA in evaluating the ecological risk questions posed by the Final BERA Work Plan & SAP. However, the lines of evidence based on these data are both confusing and conflicting and it is uncertain if the BERA can make any informed ecological risk management recommendations from them. For example, the sediment toxicity data suggest that there is no difference between the reference/background samples and the site samples, and that all collected samples appear to be toxic based on the percent survival of the amphipod. On the other hand, the sediment chemistry data suggest that the reference/background samples should not be toxic.

It is also evident from the data that some of the assumptions made in the Final BERA Work Plan & SAP are invalid. For example, it was assumed that the results of the toxicity tests would reflect the effects of the COPECs. It was also assumed that any differences in the toxicity results between the reference/background samples and site samples would be due to differences in concentrations or bioavailability of the COPECs. However, as previously stated, the results of the sediment toxicity testing indicate that there is no statistically significant difference between the reference/background samples and the site samples and that all samples appear to be toxic and appear to be different from the laboratory controls, despite that the COPEC concentrations were below ecological screening benchmarks in the reference/background samples.

Two other assumptions were made to predict bioavailability. These were that pore water analytical results and bulk sediment analytical results coupled with total organic carbon (TOC) and simultaneously extracted metals/acid volatile sulfides (SEM/AVS) analyses would be representative of COPEC bioavailability. The pore water results indicated only occasional slight exceedances of COPEC benchmarks in the wetland sediments and no exceedances in the Intracoastal Waterway sediments. These results

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do not appear to indicate that bioavailability of COPECs is the cause of toxicity. SEM/AVS results for the wetland sediments do indicate that not enough AVS is present to completely form insoluble metal sulfides and thus the metal COPECs could cause toxicity. However, the ratio of excess SEM to the fraction TOC of sediment is predominantly below the range where the prediction of toxicity is expected to occur.

The collection of additional reference/background samples is likely not an option because of the timeframes imposed by the unilateral administrative order. Even if time was not a factor, it could be argued that any new reference/background samples that do not exhibit toxicity are not subject to the same environmental conditions as those samples from the site. This assumes that the cause of the toxicity observed in the site samples is inherent to the site.

It is suggested that any available observations (both field and laboratory) describing/documenting the presence of benthic invertebrates in collected site sediment samples be included and discussed in the BERA. If a lack of invertebrates in both site and reference/background samples is observed, it may be indicative of harsh conditions.

It is acknowledged that the laboratory ran a canned statistical package on the comparison between reference/background samples and the laboratory controls. However, any statistics that indicate there is no significant difference between 81.5% survival (lab control for amphipod) and 33% survival (EWSED08), and 19% survival (EWSED09), and 42% survival (EIWSED06) appears suspect. This apparent discrepancy needs to be addressed.

A meeting of all parties associated with this site to discuss data results and the path forward for the BERA is advisable.